Medical Elective Report

by Rachna Bajaj

Dermatology at National Skin Centre, Singapore

Case 1: Pemphigus foliaceus

ZBG - 77 years old Malaysian female
History taken from son (main carer) and medical notes

Presenting complaint
Seen in Immuno-dermatology clinic at National Skin Centre Singapore for a follow-up appointment after 6-day hospital admission for flare up of her known skin condition - pemphigus foliaceus

History of Presenting Complaint
Had worsening skin conditions with erosions severe enough to lead to admission in july this year. Eyes and oral mucosa not affected. Afebrile
Known Pemphigus Foliaceus – diagnosed 3 years ago. Maintained on 10 mg prednisolone orally – but compliance is questioned as medication is given by husband.

Past Medical History

- Cerebrovascular accident 1998 with Ventro-peritoneal shunt
- Dementia
- Hypertension
- Osteoporosis
- Pemphigus Foliaceus
- Naso-gastric tube feeding

Drug History
NKDA
Prednisolone 10 mg OD

Social History
Bedbound; dependent on son and husband for all activities of daily living
Known to medical social workers

Examination
Afebrile BP 120/80, HR 90, RR 96% on room air
Cachectic, contracted all 4 limbs, uncommunicative
Healed and healing erosions with yellow crusting on abdomen trunk armpit scalp
Scaling over finger-webs
Eyes and oral mucosa spared

Differential Diagnosis
Fungal Dermatoses
Eczema
Erythroderma
Adverse Drug Reaction
Staphylococcal Syndrome
Allergic contact dermatitis

Investigations
Histology - "face: subcorneal clefting with acantholysis. Other differentials: Staphylococcal scalded skin syndrome. Abdomen: chronic dermatitis. Direct Immunofluroscence: Inter-cellular IgG in epidermis. Faint granular C3 in lower part of epidermis"
Antibody tests - anti-DSG-1 positive, anti-DSG-3 negative
WCC 8.4, Hb 12.9, Platelets 216
ESR 34 CRP 17.6
Scabies scrape negative
Skin swabs - pending
CXR: clear lung fields, VP shunt and NG tube noted

Diagnosis
Flare of pemphigus foliaceus

Anti-DSG 1 > 300, Anti-DSG-3 2.6

Management
Prednisolone 20 mg OD morning
Cephalexin 500mg TDS for 7 days
Betamethasone/Clioquinol cream BD to trunk and limbs
Betamethasone/Clioquinol cream BD to face
Aqueous cream BD to face
Cetrimide shampoo (anti-septic)
Emulsifying ointment soap
Calcium carbonate/vitamin D BD
Famotidine 20 mg BD
Lactulose 10 ml TDS PRN
Senna OD night

Discussion

Pemphigus is derived from the Greek word pemphix, which means to bubble or blister. It is an auto-immune condition, which involves an auto-antibody attack to the protein desmoglein. Desmoglein is important for binding epidermal cells together. With the antibody attack, these cells become "un-glued", a process that is known as acantholysis. These superficial blisters come off the skin easily when touched, i.e. they exhibit Nikolsky's sign.

PF may be provoked by sun exposure, or drugs such as penicillamine, nifedipine, captopril and NSAIDS. Another subtype of PF, known as *fogo selvagem*, is very common in South America. This condition seems to be provoked by a virus following an insect bite. PF is also associated with the development of other auto-immune conditions such as myasthenia gravis, bullous pemphigoid, thymoma, SLE and graves disease. Paraneoplastic pemphigus occus when the patient has a diagnosis of cancer.

People from all demographic backgrounds are susceptible to PF, with the most common age being 50-60 years.

The lesions are superficial. There may be blisters, bullae that come off easily leading to erosions. There may be crusting, extensive erythema on the trunk abdomen face scalp and the limbs, but the oral mucosa and the eyes are usually spared in PF.

Investigations usually involve a skin biopsy to study the epidermal histology. Immunofluroscence is also done to look for offending antibodies in the epidermis. Blood tests involving auto-antibody testing to DSG-1 and DSG-3 are also done to confirm the diagnosis.

Pemphigus foliaceus is treated with steroids and other immunosuppressive agents such as azathioprine and cyclophosphamide. Anti-malarials such as hydroxychloroquine have also been tried. There is a risk that the sores may get infected, and therefore antibiotic cover is also necessary. Moisturizers and emollients are also use to promote adequate hydration of the skin. For extensive cases, plasmapheresis and intravenous immunoglobulin is advocated.

As the disease may be associated with an underlying malignancy or other auto-immune disorders such as thymoma, myasthenia gravis and SLE, it is important to investigate for these conditions as well.

Sources

1. Pemphigus Foliaceus. http://dermnetnz.org/immune/pemphigus-foliaceus.html Created 2003. Last updated 15 Aug 2010. © 2010 NZDSI. Accessed 23-8-2010
2. Shwartz RA, Majewski S. Pemphigus Foliaceus. http://emedicine.medscape.com/article/1064019-overview, Last Updated 10 Jun 2010. Emedicine Dermatology Article. Accessed 24-8-2010
3. DermIS - Dermatology Information System. http://www.dermis.net/dermisroot/en/29751/diagnose.htm Accessed 24-8-2010
4. American Osteopathic College of Dermatology http://www.aocd.org/skin/dermatologic_diseases/pemphigus.html Accessed 24-8-2010

Renal Medicine at Singapore General Hospital, Singapore

I had the good opportunity to visit the Renal Medicine Department at Singapore General Hospital as part of my elective training for the MBBS course at UCL Medical School. Though I only had a short stint there, I learnt a great detail about the fascinating specialty of renal medicine as SGH was the largest tertiary referral centre for clinical nephrology services serving a population of 5 million.

SGH had a dedicated peritoneal dialysis programme, a haemodialysis unit, an interventional nephrology suite and transplantation service that serve the ever-burgeoning number of patients with end-stage renal failure (ESRF) in Singapore. SGH is also the centre where the National Organ Transplant Unit is based, and it is from here that deceased-donor kidney transplantation services are managed[1]. The home of the Singapore Renal Registry is also in this hospital. Being the largest and oldest acute care centre in Singapore, renal emergencies are also frequently encountered here.

In this report, I will aim to outline the organization of renal services and their financing in Singapore, and describe my daily routine in the department and focus on two interesting cases of renal patients in whose care I had a chance to become involved with.

Organization of Dialysis and Transplantation Services in Singapore

Singapore has dialysis service centres located in the major public hospitals such as SGH, voluntary welfare-organizations such as the National Kidney Foundation and Kidney Dialysis Foundation and in private dialysis centres such as that in Mount Elizabeth Hospital[2].

Live-donor transplantation services are provided both publically and privately; however, patients who obtain deceased-donor kidneys under the Human Organ Transplantation Act (HOTA) [3] may only do so under the public hospitals. As with other major developed nations, it is illegal to engage in any form of organ trading whatsoever. It is due to the HOTA that deceased-donor kidney transplantation rates comprise 60-70% of all transplants in Singapore[4]. Despite that, the waiting time remains more than 9 years to obtain a deceased-donor kidney under this act, compared to countries like United States, where the waiting time is more than 4 years. Henceforth, efforts have been increased to create public awareness about the prevention of chronic kidney disease and safety and efficacy of live-donor kidney transplantation to promote the health of ESRF patients. As the main reasons for ESRF in Singapore is Diabetic nephropathy (>50%)[2], efforts have also been directed to tackle the prevention of this by creating incentives for primary care practitioners under the Chronic Disease Management Programme, designed by Ministry of Health, Singapore[5].

3 'M's - A unique approach to financing ESRF care in Singapore

3 ‘M’s stands for Medifund, Medisave and Medishield; and they are cornerstones of healthcare financing in the country[6]. Medisave is a compulsory saving scheme as part of central provident fund, which citizens are required to use only for hospitalization and other medical expenses. Patients with chronic disease such as diabetes can claim from their Medisave funds under the chronic disease management programme. This lowers the healthcare cost to the patient, and creates a system of financial health security for the citizens especially in their advancing age. Medishield is a low-cost insurance scheme to provide further funds for treatments such as dialysis. Unlike the publically-funded National Health Service in UK, where treatment is ‘free at the point of care’, there is nothing ‘free’ per se in Singapore. However, the government has created a Medifund scheme which enables those with low or nil income to obtain means-tested financial assistance for medical treatment so that no citizen in theory is turned away from medical treatment that they can’t afford.

My daily routine in the Department

I was expected to begin the day with nephrology ward rounds conducted by the Senior Consultant in Nephrology at SGH. There were also opportunities to attend teaching rounds on transplantation and peritoneal dialysis which were scheduled for advanced specialist trainees in nephrology on Tuesday morning and Wednesday lunchtime. A dedicated vascular access meeting was also held on Monday afternoon, where patients with failing or complicated arterio-venous grafts and fistulas were discussed with the general surgeons and radiologists. Depending on the clinical case, I also had a chance to observe renal biopsies in the interventional nephrology suite. Renal grand rounds were held on Wednesday mornings by the Emeritus Consultant in Nephrology. The department also had dedicated outpatient clinics devoted to transplantation medicine, peritoneal dialysis, haemodialysis, chronic kidney disease, which I had a chance to observe after the ward rounds.

I now hereby outline some of the interesting patients from whom I learnt some important aspects of medicine.

CASE 2: A case of bilateral leg weakness in an ESRF patient with a failing kidney graft - a case of steroid induced neuropathy?

History

60 year old Chinese male
PC: shortness of breath
HPC: admitted from clinic 3 weeks ago. Has shortness of breath even at rest accompanied with orthopnea and PND. Denied chest pain, cough, fever, chills or palpitations. Also complains of not being able to walk gradually due to weakness

in legs for the last eight months. Claims compliance with low potassium and phosphorus diet and prescribed medications.
PMH:

1. Cadaveric Kidney Transplant 15 years ago due to chronic hypertension despite being on anti-hypertensives. Currently, his baseline creatinine is 230, and trends show chronically declining graft function.
2. Gout – takes probenecid
3. Hypertension
4. Generalised Anxiety disorder
5. Recently admitted in feb this year for atypical chest pain but MIBI scan was negative

DH: Penicillin allergy
Prednisone 5 mg OM, cyclosporine 50 mg BD, vitamin B (neurobion), calcium carbonate 1.25g OM, valsartan 80 mg BD, atenolol 25 mg OM, amlodipine 5 mg OM, allopurinol 50 mg OM, colchicine 500 mcg BD, renal vitamin OM, terazosin 2mg ON, famotidine 20 mg BD, Orphenadrine citrate 35 mg, paracetamol 450 mg
FH: well
SH: ADL independent, smoked 20 cigarettes per day for 20 years. Lives with wife and children, now retired

Examination

Weight 52 kg, afebrile
Left forearm AV fistula - thrill
Heart S1, S2 heard, BP 119/84 - sitting and standing, HR 65, RR 20
Abdo soft and non-tender, BS heard, no organomegaly.
Neurological examination:
LL – no deformities, wasting, fasiculations. Tone normal, power MRC scale 4/5 in all LL muscle groups, deep tendon reflexes at knee, ankle, babinski normal. No clonus. Gait – undetermined (patient says his legs will give way if he walks). Heel -shin test normal. Sensation not tested.
UL – no deformities/wasting. Tone normal, power MRC scale 5/5 in al UL muscle groups, biceps reflex normal, nose-finger pointing coordinated. Sensation not tested

Differential Diagnosis

For SOB

- Fluid overload
- Acute on chronic renal failure
- Infection
- PE
- Acute coronary syndrome
- Anxiety

For bilateral LL weakness
Examination implies LMN lesion

- uremic myopathy[8]
- Steroid induced myopathy
- Colchicine induced myopathy[9]
- Vitamin B12 deficiency
- Metabolic myopathy – hypothyroidism, cushings disease, alcohol abuse
- Acute inflammatory demyelinating polyneuropathy - Guillian Barre Syndrome
- Anaemia

Investigations

Serum creatinine 213, Urea 18.7
Potassium 5.3, chloride 114, bicarbonate 15.3
Uric acid 562
Hb 11.6 MCV 104.5
WBC 11
Albumin 30
CK normal
CRP 86.7
Calcium phosphate normal
urine microscopy – negative
ECG – non-specific intra-ventricular conduction delay
CXR - normal

Plan and Follow –up

Commence dialysis. Wants haemodialysis for symptomatic relief - has arranged it privately. Do pre-haemodialysis bloods including HIV, HBsAg, and Hep C Ig G
Advised fluid restriction, care of AVF
SOB resolved on admission
Physiotherapy 3/7 week
Plan for long term renal care in view of declining graft function

Discussion

The patients' gradual progressive bilateral weakness in the lower limbs points towards a distal myopathy. Uremic myopathy is most likely the case given that this is known to be a well reported cause of weakness in CKD patients – and in our patient, his kidney function is deteriorating. It is possible that the weakness could be steroid induced as the patient had been on prednisone for many years; however the dose has been small. Colchicine is known to cause myopathy, but the patient was only recently started on it for gouty flare, whereas his weakness has been building over the last eight months. GBS does cause symmetrical weakness, but history does not suggest flu like illness, and therefore the diagnosis of GBS is lower in the differential. Vitamin B12 can cause bilateral weakness, but the patient look well nourished. Anaemia could also be a cause but haemoglobin is not drastically low.

CASE 3: Obstructive uropathy in a 29 year old Malay patient with cervical cancer who refuses potentially curative surgical treatment

History

29-year-old Malay female patient
PC: shortness of breath
HPC: dyspnoea for last two weeks, worse with sleeping (orthoponea), accompanied with paroxysmal nocturnal dysponea. Also complains of some streaks of blood whilst coughing. Intermittent fever, thought UTI. Also had central abdominal pain, diarrhoea and vomiting, but was treated symptomatically by GP.
PMH: Squamous cell CA of cervix Stage 2B - diagnosed a year ago at National Cancer Centre, Singapore, had presented with lower abdominal pain/pelvic pain x 4/12, menorrhagia (clots) accompanied irregular menses and post-coital bleeding. Pap smear showed atypical squamous cells, colposcopy revealed exophytic mass and histology revealed keratinizing SCC of cervix. CT on did not show metastases to lung, bone or liver. Laparoscopic bilateral transposition of ovaries and bilateral salpingectomy was done subsequently in preparation for radiotherapy. After that, she completed six cycles of chemotherapy and radiotherapy treatment at NCC.
Date of last negative Pap smear not known. No known obstetric history or STI in past.
DH: NKDA, no regular medication on admission
FH: 2nd child. No female siblings. All in family are well, with no known medical conditions.
Social Hx: Completed Grade 10 of education. Last known job was in administration. Known to have multiple partners in the past, not using condoms, had receptive and active vaginal anal and oral sex without condom use. Also known to have been a drug abuser, and been convicted to prison due to this.

Examination

Afebrile. Vital signs stable, O2 sats 100% on room air, Urine output 0 whilst input at admission 2002 ml.
Heart: S1 + S2 heard. JVP not raised, No additional heart sounds or murmurs r heaves of thrills. Ankle and sacral oedema absent
Respiratory: lungs clear bilaterally, vesicular breath sounds
Abdomen: soft, non-tender. Bowel sounds heard. No organomegaly or lymphadenopathy.
PV – not done

Investigations

Urine microscopy: RBC, WBC
Bloods:

Procalcitonin 1.5
CK 115
Urea 50
Potassium 6.7
Bicarbonate 8
Creatinine 1862
Albumin 22
CRP 239
Pro-BNP > 7000
PT 12.8 APTT 40
Hb 9.4 MCV NORMAL but iron studies show iron deficiency
Phosphate 3.39
CXR - opacification in perihilar region and lower lung zone. Possible pneumonia or pneumocystitis infection

Echo: mild tricuspid, mitral and pulmonic regurgitation. LVEF 20-25%. Moderate global LV hypokinesia
US kidneys: mild bilateral hydronephrosis due to query tumour. Small perinephric haematoma on Left kidney
CT Chest: No pulmonary embolus. Patchy area of air space disease on both lungs. Mild bilateral hydronephrosis. New pelvic and para-aortic masses seen.

Differential Diagnosis for SOB

- Acute pulmonary oedema secondary to obstructive renal failure caused by tumour or due to LV dysfunction or cardiomyopathy (due to chemo- perhaps adriamycin)
- Pneumonia/TB/sepsis
- Metastases
- Pulmonary embolus

Follow-up

An indwelling catheterization procedure was done on admission to monitor urine output. Emergency treatment of hyperkalemia was instituted by giving actrapid insulin and calcium gluconate. A dialysis catheter was also inserted.

Due to the clear picture of obstructive uropathy, bilateral percutaneous nephrostomy was done, and the patient had post-obstructive diuresis with the creatinine coming down dramatically. The complaint of dysponea also resolved subsequently.

From the point of view of the gynaecology-oncology team, pelvic exenteration surgery was now not advised as tumour had spread further; now extending to the uterus and bladder. Patient in the past had thus far refused Wertheim's hysterectomy due to the fear of having to live a life with a urostomy bag. Given

the situation, a family conference was called for, and the management was for palliation with respect to the tumour.

Discussion

This case dramatically highlights the impact of cervical cancer on a young woman – and also demonstrates the impact that the new HPV vaccines (Gardasil and Cervarix) will have on cervical cancer morbidity and mortality in the future. However, unfortunately Singapore has decided not to make it yet a part of its routine childhood immunisation programme unlike other countries as the MOH feels that long-term efficacy still needs to be evaluated[10].

Another interesting point to think about is the patient's decision to refuse potentially curative surgery when the cancer was still in its treatable stages. It highlights that the principle of patient autonomy must always be borne in the mind when making medical decisions and good medical practice states that any medical decision that is reached is mutually agreeable to both the patient and their physician. It is vital to ensure that the patient is competent in making the decision to not to treat – and the Mental Capacity Act[11], which was newly enforced in Singapore in 2010, requires that they understand, weigh, retain and communicates their decision, in order to be judged competent. In this case, our patient was able to understand the consequences of not proceeding with the proposed surgery – i.e. spreading of cancer causing lower life expectancy. However, she was able to weigh this against the option of proceeding with surgery which would have given her a greater life expectancy with perhaps her perceived lower quality of life with a urostomy bag. Quite clearly, the patient was distressed about her cancer, but whilst communicating with her she was able to think clearly, and was lucid in conveying her decision. Perhaps what could have benefitted her was some psychological input so that she could examine more closely her values and ideas about life and the stigma of a bag – and whatever the decision *reached by the patient* – whether for surgery or against, it has to be respected. In the case of my patient however, the tumour extended too much, and surgery was not deemed curative anymore.

References

1. Renal Medicine Department. Singapore General Hospital. www.sgh.com.sg Accessed 22/9/2010

2. Report of 2005/6 Singapore Renal Registry. Available from National Registry of Renal Diseases, Health Promotion Board.
3. Human Organ Transplantation Act. Available at http://statutes.agc.gov.sg/ Accessed 22/9/2010
4. Woo KT. The Singapore Renal Registry: an overview. *Singapore Med J*. 1993 Apr; 34(2): 157-63.
5. Medisave for Chronic Disease Management Programme. http://www.moh.gov.sg/mohcorp/pressreleases.aspx?id=12218 Accessed 22/9/2010
6. Chorh-Chuan Tan, Choong-Meng Chan, Chee-Khun Ho, Kok Seng Wong, Evan J C Lee And Keng Thye Woo. Health economics of renal replacement therapy: Perspectives from Singapore. *Kidney International* (2005) 67, S19–S22
7. Vathsala A. Khuan Yew Chow. Renal Transplantation in Singapore. *Annals of the Academy of Medicine*, Singapore. 2009, vol. 38, no4, pp. 291-299
8. Campistol JM. Uremic myopathy. *Kidney International* (2002) 62, 1901–1913.
9. Kayser Caglar, Zeki Odabasi, Mukerrem Safalic, Mujdat Yenicesu and Abdulgaffar Vural. Colchicine-induced myopathy with myotonia in a patient with chronic renal failure. Clinical Neurology and Neurosurgery Volume 105, Issue 4, September 2003, Pages 274-276
10. Cervical cancer vaccine has its limitations. MOH 8 Jan 2007 http://www.moh.gov.sg/mohcorp/mediaforums.aspx?id=12450 Accessed 22/9/2010
11. Mental Capacity Act 2008. Available at http://statutes.agc.gov.sg/ Accessed 22/9/2010

Elective Funding

I would like to thank the following organizations for supporting this elective project.

Renal Association Bursary Award
South Asian Health Foundation Elective Award
University College London Elective Grant
Vandervell Foundation Research Grant